Remarks

The following remarks are responsive to the Examiner's rejection in the Office Action dated December 27, 2005. Applicants wish to thank the Examiner for his helpful comments. With respect to each of the rejections, a detailed response is provided separately below. All claims as originally presented were at the time of the invention, commonly owned.

Status of the Application

The pending claims are 15 to 22 and 27. Claims 15 to 22 and 27 stand rejected under 35 U.S.C. § 103.

Independent Claims 15 and 20 have been amended to advance the prosecution by more clearly distinguishing the present invention over the cited references and to state explicitly that the organic layer comprises an organic active layer. No new issues are raised for examination and no new matter is introduced by these amendments. Support for the amendments to Claims 15 and 20 is provided in the Specification in the "Detailed Description" at page 20, lines 7-10.

Rejection under 35 U.S.C. § 103(a): Claims 15 to 18 and 27

Claims 15 to 18 and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,355,505 ("*Maeda*") in combination with U.S. Patent No. 6,160,828 ("*Kozlov*") and U.S. Patent No. 4,767,674 ("*Shirai*"). Applicants respectfully traverse the Examiner's conclusions for a variety of reasons. First, *Maeda* relates to a process for making heat sinks that are attached to inorganic laser chips after the making of the heat sink and is quite dissimilar to the process of making the organic electronic device as presently claimed in any of the pending claims. Second, *Kozlov*, while relating to an organic laser, has no patterned electrically conductive layer and no heat sink. Therefore, *Kozlov* is not directly applicable to the instant claims, and one skilled in the art to which the present invention pertains would not have been motivated to combined *Kozlov* with *Maeda*. Third, *Shirai* relates to a metal cored board including an insulating organic polymer layer, which is does not include an organic active material as described in amended independent Claims 15 and 20. Fourth, there is no teaching or suggestion to combine these references in any manner in any of the references. Fifth, even if one were to have combined the teachings of *Maeda, Kozlov*, and *Shirai*, one of ordinary skill would not have achieved the invention of independent Claims 15 and 20 (or any of the pending claims that depend thereon).

Specifically, *Maeda*, is directed to the manufacture of a panel of heat sinks for use in an inorganic semiconductor laser device. The *Maeda* process of making a plurality of heat sinks uses a plurality of substantially parallel photomasks spaced at predetermined intervals to define grooves. Once the panel of heat sinks is made on the mirrored surface of the panel, the panel is cut along the defined grooves into a plurality of heat sinks resulting in elongated segments of heat sinks; and, then the elongated segments are transversely cut. *See, e.g., Maeda* at the Abstract; Figure 12 (a perspective view of a heat sink cut off the panel); Col. 4. lines 56-57; Col. 3, line 65 to Col. 4, line 47; Col. 7, line 51-5; and the description of the *Maeda* Figures.

Only after the *Maeda* heat sinks are cut into a plurality of individual elements (*i.e.*, by cutting along the grooves and then further cutting the resulting segments transversely) does *Maeda* teach the attachment of the mirrored surface of its heat sinks to an *inorganic* laser device chip. *See, e.g., Maeda* Col 4, lines 48- 52 (chip is "fixed using a brazing filler metal or the like") and Figure 31. It is respectfully submitted that *Maeda* does not teach or suggest forming a patterned electrically conductive layer over the organic layer of an organic electronic device or that its heat sinks would be part of any formed spaced-apart members that were formed over the patterned electrically conductive layer of any organic electronic device.

The deficiencies of *Maeda* are not cured by the teachings of *Kozlov*. *Kozlov* is directed to organic vertical-cavity surface emitting lasers comprising a single uniform surface that has no patterned electrically conductive layer. The vertical cavities are created by disposing the organic materials between highly reflective mirrors to form the vertical cavity in a stacked arrangement. *See, e.g, Kozlov* at Col. 2, lines 19-29 and Figures 5, 6, and 7 (electrically pumped lasers) and explanation at Col. 5, lines 47- Col. 6, lines 39. The reflective mirrors permit light to pass through, but neither the mirrors nor their stacking creates a patterned electrically conductive layer as required by pending Claim 15. Moreover, the use of the optional guiding and cladding layers around the organic materials does not create a patterned electrically conductive layer as is created by the process of pending Claim 15.

Additionally, there is no teaching or suggestion of the use or even the need for a heat sink in *Kozlov*. Thus, there is no teaching or suggestion to combine the teachings of *Maeda* and *Kozlov*.

The deficiencies of *Maeda* and *Kozlov* are not ameliorated by the teachings of *Shirai*. *Shirai* is directed to a metal cored board which comprises an electrically conductive layer whose one surface is at least composed of a hardly oxidizable metal, an insulating organic polymer layer baked on the surface of the hardly oxidizable metal, and a metal core adhered on the insulating organic polymer layer. The insulating organic polymer layer of *Shirai* is electrically insulating and provides dielectric breakdown strength, and is at the heart of the *Shirai* invention. *See, e.g., Shirai* Col. 1, lines 18-22. This electrically insulating layer is not an organic active layer as recited in amended Claims 15 and 20.

Additionally, there is no teaching or suggestion of the use of, or even the need for, an electrically insulating layer with good dielectric breakdown strength in *Maeda* or *Kozlov*. Thus, there is no teaching or suggestion to combine the teachings of *Maeda* and *Kozlov* with the teachings of *Shirai*.

Furthermore even if one were to combine the teachings of *Maeda, Kozlov* and *Shirai*, one would have, perhaps, achieved an organic vertical-cavity surface-emitting laser with a heat sink attached (or brazened) onto its side with excellent dielectric breakdown strength, although it is not entirely clear if a device made by the combination *Maeda, Kozlov* and *Shirai* would be functional or desirable. It is respectfully submitted that combining the teachings of these three references would not have obtained an organic electronic device formed by the instant process, as required by amended Claims 15 and 20.

Thus, for the reasons stated above, neither *Maeda, Kozlov* nor *Shirai*, when read alone or together, teach or suggest the subject matter of pending Claim 15 and dependent Claims 16 to 18 and 27. Applicants respectfully request the Examiner to withdraw the above referenced rejection.

Rejection under 35 U.S.C. § 103(a): Claim 19

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Maeda* in combination with *Kozlov* and *Shirai* and in further view of U.S. Patent No. 6,803,257 ("*Lee*"). This rejection is also respectfully traversed. The distinguishing remarks provided above are equally applicable to Claim 19, which depends from Claim 18 and ultimately depends from Claim 15. In addition, there is no teaching or suggestion to combine *Maeda, Kozlov, Shirai* and *Lee*, and even if combined, *Lee* does not teach or suggest resolution of any of the deficiencies discussed above.

In particular, the *Lee* teaching relates to a method of manufacturing a printed circuit board having an element to dissipate heat (a heat sink panel) in a manner separately from the printed circuit board. As explained in more detail below, the *Lee* method of manufacturing its heat sink panel is unrelated to the method as claimed in pending Claim 19.

First, *Lee* does not teach or suggest anything relating to a method of an organic electronic device or laser (organic or inorganic). Second, the *Lee* method is a method of adding the heat sink panel to the printed circuit board by attaching it to the lower surface of the printed circuit board. *See Lee* at Col. 7, lines 7-11. Third, *Lee* teaches fabrication of its heat sink panel by making a pattern in the oxide insulating layer on the unpatterned alloy panel. *See Lee* Figures 2a-2h. In contrast to *Lee*, the heat sink of Claim 19 is created by patterning the insulating layer prior to plating the spaced-apart members onto the electrical conductive layer (as set forth in Claim 18). Even reading the references in the most favorable light to support the above rejection, the process of pending Claim 19 is the opposite of that which would have been taught by *Lee*. Consequently, to the extent *Lee* teaches or suggests anything related to the combined teachings of *Maeda, Kozlov* and *Shirai*, it teaches away from the process of pending Claim 19, as discussed above.

Applicants submit that the nothing in *Maeda, Kozlov, Shirai* or *Lee*, when read alone or in combination, teaches or suggests any aspect of the process of pending Claim 19, and respectfully request that this rejection be withdrawn.

Rejection under 35 U.S.C. § 103(a): Claims 20 to 22

Claims 20 to 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Maeda* in combination with *Kozlov* and *Shirai*, and in further view of U.S. Patent No. 4,381,966 ("*Rasekhi*"). Applicants respectfully traverse this rejection

In particular, as explained above, attaching of heat sinks made by the *Maeda* process to an inorganic laser does not teach or suggest any aspect of the subject matter of Claim 20. Further, *Kozlov*'s teaching of a vertical-cavity organic laser (organic materials between two mirrors and no heat sink) does not teach or suggest the method of forming an electronic device of Claim 20 (a method to create an organic device having a heat sink comprising the first layer formed over the organic layer). Additionally, the electrical insulating layer of *Shirai* is not an organic active layer as required in amended Claim 20.

Rasekhi fails to make up the deficiencies of *Maeda, Koslov* and *Shirai*. In addition, there is no teaching or suggestion in any of these references to combine *Maeda, Kozlov, Shirai* and *Rasekhi*, and even if combined, *Rasekhi* does not teach or suggest any manner of compensating for the deficiencies of *Maeda, Koslov* and *Shirai*.

Specifically, *Rasekhi* is directed to a method of fabricating, from a single piece of copper foil, the recording element structure of a multi-channel magnetic recording head. While use of a photoresist is part of the *Rasekhi* method, this is no teaching or suggestion that is relevant to the process of pending Claim 20, and one skilled in the art of OLED device fabrication would not have had any motivation, or expectation of success, in combining *Rasekhi* with *Maeda* or the other references.

In *Rasekhi*, the photoresist is applied directly to the copper foil (*Rasekhi* at Col. 4, lines 19-21), the photoresist is etched off to expose the areas where the nickel is then deposited (*Rasekhi* at Col. 4, lines 26- 30 & lines 51-56), and then a support substrate is added to support the nickel elements particularly at the recording zones (*Rasekhi* at Col. 5, lines 1-21) and ultimately, the photoresist is entirely removed (*Rasekhi* at Col. 5, lines 33-36). In sum, *Rasekhi* etches the photoresist to define an area for deposition of the nickel. By contrast, in the process of pending Claim 20, the resist is used to create exposed areas for etching the first layer (not its deposition) so as to etch at least partially through the first layer. In sum, to the extent *Rasekhi* teaches anything, it teaches away from the use of a resist as provided in pending Claim 20. Applicants also submit that *Rasekhi* is not analogous to the field of art to which this invention most closely pertains, and should not be considered as a reference.

The *Rasekhi* recording head element process (photoresist on metal with no organic layer) does not teach or suggest the use of a photoresist layer over a heat sink comprising a first layer formed over an organic layer. It is submitted that nothing in *Maeda, Kozlov, Shirai* or *Rasekhi*, when read alone or together, teach or suggest the subject matter of pending Claims 20 to 22, as amended herein. Thus, Applicants respectfully submit that the above referenced rejection should be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the above referenced application is in condition for allowance. A Notice of Allowance is earnestly requested for the pending claims.

Applicants believe that no fee is required to accompany submission of this paper. If a fee, not accounted for herein, is required, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Should the Examiner have any questions about the content of this paper or the status of the application, the Examiner is invited to call the undersigned at the telephone number listed below.

Respectfully submitted,

Lamming

JOHN H. LAMMING
ATTORNEY FOR APPLICANTS
Registration No.: 34,857
Telephone: (302) 992-5877
Facsimile: (302) 892-1026

Dated: March 27, 2006